PATENT SPECIFICATION 942,255

DRAWINGS ATTACHED.

942,255

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COMPLETE SPECIFICATION.

Improvements in or relating to Kerbing.

We, PHILIP KING, of Offley Place, Old Brampton, Chesterfield, and RICHARD MOFFATT, of 133 Prospect Road, Broadway, Sheffield, both British Subjects, do hereby declare the invention, for which we pray that a patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:—

This invention relates to kerbing such as is used to define the edges of pavements, roadways, and the like, and has for its object the provision of a hollow shell that may be laid in position with much less effort than is required in the laying of solid kerbing.

According to the present invention, a shell to be laid with other such shells to produce a length of laid kerbing is composed of integrally connected sheet-like walls of tough synthetic plastic material, and base means also integral with the shell for supporting the shell on a flat foundation, the sheet-like walls of the front and upper surfaces of the shell constituting the faces of the kerbing to be left exposed when the shell is laid.

Placed end-to-end with other similar shells on a prepared foundation, each such shell can be readily aligned with the others and then secured against movement, as may be readily effected by filling material rammed or poured into the space behind and below the front and upper surfaces respectively of the row of shells, thereby forming a continuous length of kerbing, permanently faced above and in front with the tough, synthetic plastic material-based sheet material.

The sheet material forming the shell may be thermoplastic synthetic plastic material, softened by heat to enable it to be shaped to a former. Again the shell may be of synthetic resin compounded with glass fibres, moulded to a former. Integral stiffeners of the same material as the shell may be located internally of the shell.

To assist in positioning the shell on the prepared foundation, ready to receive the filling material, the front of the shell may be turned inwards from its foot, either as a continuous internal flange, or as a series of wide feet. The flange or feet then become buried in the filling material. Again, a flange or feet may be turned outwards. Thus, the shell may be of inverted U-section, with one or more holes through the top surface for the insertion of filling and/or grout, with continuous flanges or feet turned outwards from the section along both the front and back of the section.

Earth or rubble excavated from the site of the foundation may serve as the filling material, provided it is compacted by ramming. However, if concrete-making materials are readily available, a lean concrete mix may be used, particularly in conjunction with shells formed from resin-bonded glass fibres, as the concrete will readily bond to the inner surfaces of the shells. Whatever the filling, consolidation may be effected by the insertion of grout through holes in the top of the shell, whether of the inverted-U form indicated or of any other form.

The shell construction affords a device that is light and, in consequence, easy to handle and transport, by comparison with conventional kerb-stones of stone or moulded concrete. Although the shell itself is light, it is possible by its use to produce kerbing of at least equal strength and durability to kerb-stones formed from conventional solid

material, when a row of such shells has been united by filling material providing backing and support for the surfaces of the shells.

Moreover, the lightness of the shell enables it to be used in lengths much greater than is possible with conventional kerbing, so that any given length of finished kerbing may be aligned very quickly by placing relatively few but long devices on the foundation. The shells, may be straight or curved, so that any given alignment can be set up by combining different forms of shell. The lightness of the shell also facilitates transportation.

To assist in aligning one shell with the next, the end of one may overlap that of the next, as by an integral sleeve or spigot extension, which also serves as a stiffener for the next shell. The end of the shell from which the sleeve or spigot extends may be thickened internally to stiffen that shell. Similar thickenings may be provided along the length of the shell. Again, an upright groove may be formed in an end wall provided on the shell, and a corresponding rib in a wall at the other end.

Open-ended shells readily nest one to the other, since they have some degree of flexibility, so that they may be transported in large numbers in compact form.

Supported by its filling material, kerbing made of the shells does not readily disintegrate under impact. If, however, damage does occur when resin-bonded glass fibre material is used, it is possible to make a repair *in situ* by patching.

Where the material of the shells is translucent, cavities may be left in the filling material to incorporate light-fittings. Such material may also have a bead-like surface finish, locally or otherwise, to impart reflective properties in the dark or in fog. Again, the material may be used in various colours, to serve as warning or other signals to traffic.

The invention will now be further described with reference to the accompanying drawings, in which:—

Figure 1 shows one end of an open-ended shell in position on a prepared foundation;

Figure 2 is a transverse section showing the shell of Figure 1 in final position and filled;

Figure 3 shows a shell as in Figure 1 but provided with stiffeners;

Figure 4 shows a shell with web stiffeners and having an end wall formed with an upright groove;

Figure 5 is a plan showing interengagement of two shells by an end groove in one and an end rib in the other;

Figure 6 shows a spigot connection between the ends of two shells; and

Figure 7 corresponds to Figure 2 but shows an inverted U-shell in final position and filled.

In Figure 1, a prepared concrete foundation 1 provides a support for the inwardly turned bottom flange 2 of a synthetic plastic shell having a front 3 and a top 4. The front 3 includes an upper chamfer 5, with the upper edge 6 radiused into the top 4. However, as indicated in broken lines at 7, the front 3 and top 4 could meet in a square edge. Again they could meet in a rounded edge. Instead of a continuous bootm flange 2, gaps 8 could transform the flange into spaced wide feet.

The shell may be simply laid on the foundation 1, the upper surface of which has been prepared at a level appropriate to the depth of the shell and the height of the footpath 9, or it may be secured with the aid of adhesive or by pegs driven through the material of the flange 2 (or feet) or through holes for the purpose in the flange (or feet). The back of the shell being open, filling material is packed into it, this either by the "earth" fill 10 on which the path 9 is eventually laid, or lean concrete 11, say 20:1 mix, applied very dry, which could also extend on to the rear of the foundation 1, as indicated at 11A. In order to ensure that the filling, whether "earth" or concrete, provides support for the top 4, and particularly for the corner 6, grout may be run in through holes in the top 4 (see Figure 4). The front of the shell may also be supported by a haunch 12 of concrete laid on the front of the foundation, before placing of hard core 13 against the kerb to receive the road surfacing material 14.

In Figure 3, strips 15 of the same material as the shell are secured at intervals within the shell to act as stiffeners.

In Figure 4, webs 16 with flanges 17 divide the shell into cells and provide added stiffeners between the top 4 and the bottom flange 2. Holes 18 in the top 4 provide for the running of grout into each cell when it has been filled. The shell also has an end wall 19 with an upright groove 20. As shown by Figure 5, the groove 20 receives an upright rib 21 of the other end wall 19A of an adjoining shell, the interengagement assisting in the alignment of the shells, as well as mutual support. Grout or other jointing material may be run into the joint.

Alignment may also be effected by spigot-and-socket interengagement of the ends of shells, particularly open-ended shells, as shown by Figure 6. The end of one shell 22 is left plain, but the end of the shell 23 has an internal sheet expansion 24 to form a spigot that slides into the shell 22, and also serves to stiffen the shell 22.

In Figure 7, a shell 25 of inverted-U form has forwardly and rearwardly facing flanges 26 on the front 27 and back 28 to provide

a firm support for the shell on the foundation 1. Fill ("earth" or concrete) is inserted through holes 29 in the top 30, and these holes can also be used for the introduction of consolidating grout. This shell also may have internal stiffeners, including webs to divided it into cells.

Although Figures 1 and 3 to 6 show straight shells, the like details of construction are equally applicable to curved shells of any desired radius, curved shells fitting end-to-end with each other or with straight shells to provide smoothly continuous kerbing.

WHAT WE CLAIM IS:—

1. A shell to be laid with other such shells to produce a length of kerbing, the shell being composed of integrally connected sheet-like walls of tough synthetic plastic material, and base means also integral with the shell for supporting the shell on a flat foundation, the sheet-like walls of the front and upper surfaces of the shell constituting the faces of the kerbing to be left exposed when the shell is laid.

2. A shell as in Claim 1, wherein the sheet material is thermoplastic synthetic plastic material.

3. A shell as in Claim 1, of synthetic resin compounded with glass fibres, moulded to a former.

4. A shell as in any of Claims 1 to 3, wherein the front is turned inwards from its foot, either as a continuous internal flange, or as a series of wide feet, to form the means for supporting the shell on a foundation.

5. A shell as in any of Claims 1 to 4, provided internally with integral stiffeners, of the same material as the shell.

6. A shell as in Claim 5, wherein the stiffeners are webs to divide the shell into cells.

7. A shell as in any of Claims 1 to 6, comprising an end spigot to align the shell with the next such shell.

8. A shell as in any of Claims 1 to 6, comprising an upright groove in an end wall to engage a corresponding upright rib in the end wall of the next such shell.

9. A shell as in any of Claims 1 to 8, comprising holes through the top surface for the introduction of filling and/or grout.

10. Shells for the production of a length of laid kerbing substantially as hereinbefore described with reference to the accompanying drawings.

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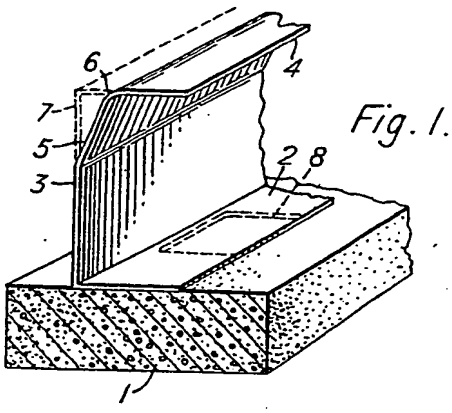

Fig. 1.

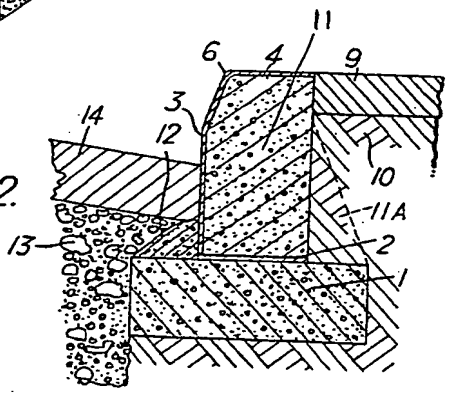

Fig. 2.

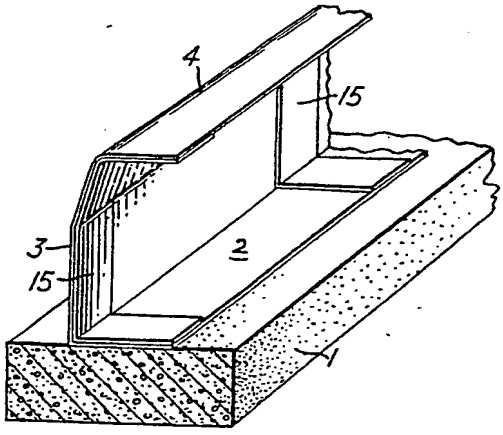

Fig. 3.

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2 SHEETS *This drawing is a reproduction of the Original on a reduced scale*

Sheets 1 & 2

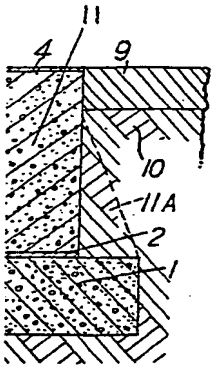
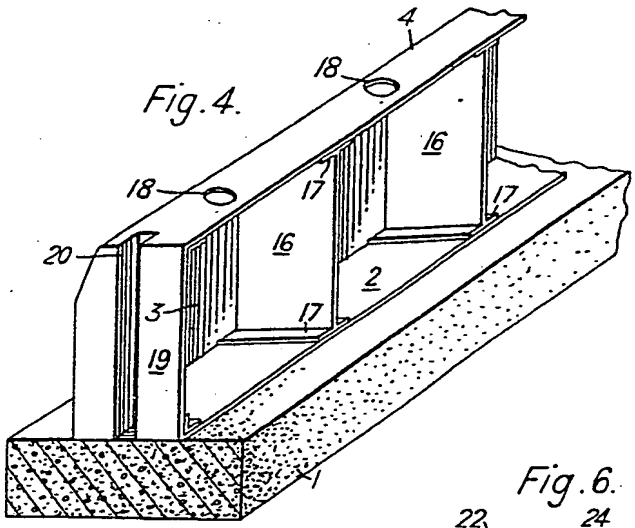


Fig. 4.



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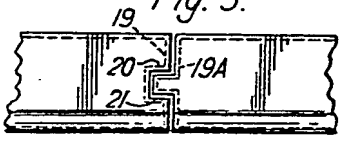

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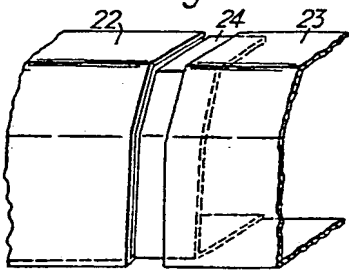

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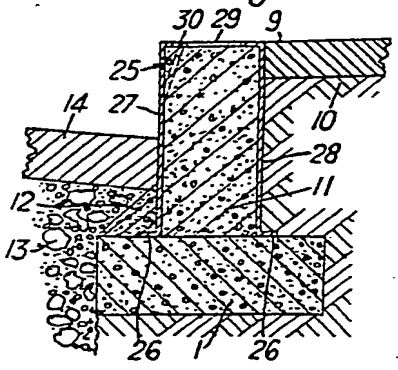
Fig. 7.



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Sheets 1 & 2

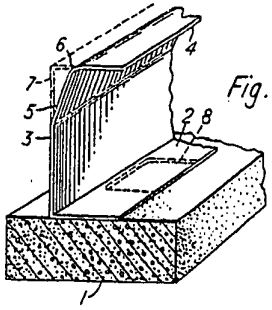

Fig. 1.

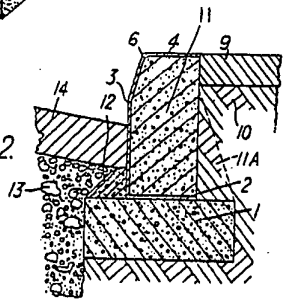

Fig. 2.

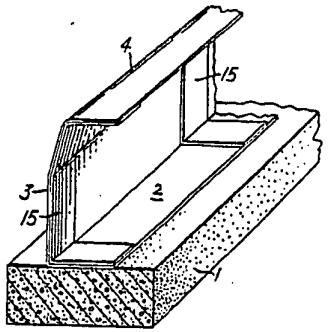

Fig. 3.

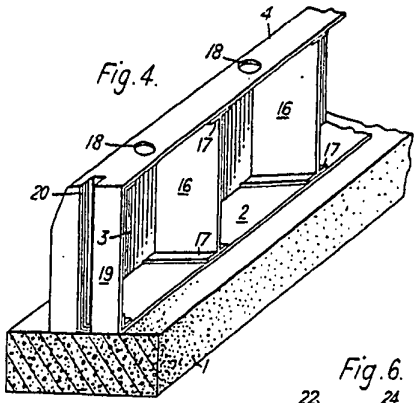

Fig. 4.

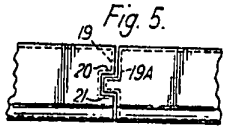

Fig. 5.

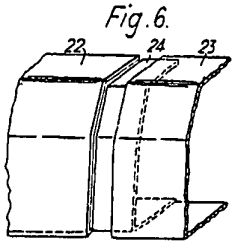

Fig. 6.

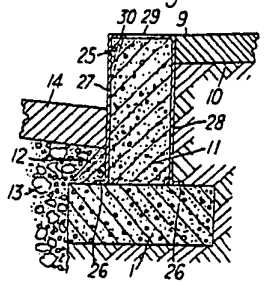

Fig. 7.